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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/018,056	03/05/2002	David R Horton	P07423US00/RFH	5428

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EXAMINER

KRISHNAMURTHY, RAMESH

ART UNIT PAPER NUMBER

3753

DATE MAILED: 02/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/018,056	HORTON, DAVID R	
	Examiner	Art Unit	
	Ramesh Krishnamurthy	3753	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 November 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 - 15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 12 and 13 is/are allowed.
- 6) ☒ Claim(s) 1 - 11, 14 and 15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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This office action is responsive to amendment filed 11/19/2004.

Claims 1 – 15 are pending.

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 8, 9, 11 and 14 are rejected under 35 U.S.C. 102(b) as being anticipated by DE 40 33 818 A1.

DE '818 discloses (Figs. 4 - 6) a non-return valve comprising:

A valve body including a fluid passageway having an inlet (near (1)) and an outlet (near (6a)); and a valve diaphragm (6) in the form of a conical-shaped diaphragm having a collapsible aperture (6a) located at one adjacent its apex which is oriented in a downstream flow direction of the valve, said diaphragm (6) tapering in wall thickness towards said apex, said diaphragm being connected across the fluid passageway, and being rotationally symmetrical about a longitudinal axis that passes through the apex and being constructed of a resiliently flexible material wherein the diaphragm itself initiates closure of the collapsible aperture (6a), said closure being further promoted by fluid on the high pressure side of the valve to thus prevent fluid flowing a reverse direction towards the inlet whereas application of pressure, exceeding atmospheric pressure and that on the high pressure side, to an inlet side of the diaphragm deflects the diaphragm to expose the aperture (6a) and allow flow through the passageway from the inlet to the outlet .

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3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1 – 4, 7 – 9 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Souza (US 3,822,720) in view of DE 40 33 818 A1.

Souza ('720) discloses (Figs. 1- 7) a non-return valve comprising:

A valve body (12) including a fluid passageway (13) having an inlet (14) and an outlet (15); and

A valve diaphragm (16, 16') in the form of a conical-shaped diaphragm having a collapsible aperture (26) located at one adjacent its apex which is oriented in a downstream flow direction (from (14) towards (15)) toward the high pressure side (15) (under valve closed condition) of the valve, said diaphragm (16, 16') being connected across the fluid passageway (13) and being constructed of a resiliently flexible material (Col. 2, lines 55 – 57) wherein the diaphragm itself initiates closure of the collapsible aperture (26), said closure being further promoted by fluid on the high pressure side of the valve to thus prevent fluid flowing a reverse direction towards the inlet whereas application of pressure, exceeding atmospheric pressure and that on the high pressure side, to an inlet side of the diaphragm deflects the diaphragm (16, 16') to expose the aperture (26) and allow flow through the passageway (13) from the inlet (14) to the outlet (15) (Col. 3, lines 43 – 57).

Souza discloses the claimed invention with the exception of explicitly disclosing the diaphragm to be rotationally symmetrical about a longitudinal axis that passes through its apex.

The document DE '818 discloses that it is known in the art to provide a valve diaphragm (6) that is rotationally symmetrical about a longitudinal axis that passes through its apex, for the purpose of providing a symmetrical opening/closing of the valve when subjected to fluid pressure in the appropriate direction.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have provided in Souza a diaphragm that is rotationally symmetrical about a longitudinal axis passing through its apex, for the purpose of providing a symmetrical opening/closing of the valve when subjected to fluid pressure in the appropriate direction, as recognized by DE '818.

Regarding claim 4, it is noted Figs. 6A – 6C in Souza disclose an arrangement comprising a series of non-return valves (31, 32) coupled to each other each of said non-return valve comprising:

A valve body (12) including a fluid passageway (13) having an inlet (14) and an outlet (15); and

A valve diaphragm (16, 16') in the form of a conical-shaped diaphragm having a collapsible aperture (26), said diaphragm (16, 16') being connected across the fluid passageway (13) and being constructed of a resiliently flexible material (Col. 2, lines 55 – 57) wherein the diaphragm itself initiates closure of the collapsible aperture (26), said closure being further promoted by fluid on the high pressure side of the valve to thus

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prevent fluid flowing a reverse direction towards the inlet whereas application of pressure, exceeding atmospheric pressure and that on the high pressure side, to an inlet side of the diaphragm deflects the diaphragm (16, 16') to expose the aperture (26) and allow flow through the passageway (13) from the inlet (14) to the outlet (15) (Col. 3, lines 43 – 57).

Regarding claim 7, it is noted that each of the non-return valves in Souza has a diaphragm (16,16') that is generally conically shaped and has a collapsible aperture (26) located at its apex that is oriented in a downstream direction.

Regarding claims 8 and 9, it is noted that (fig. 2 and Col. 2, lines 53 – 58 (in Souza)) the membrane and valve body are formed integrally by molding with a plastic material.

5. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Souza (US 3, 822,720) and DE 40 33 818 A1 as applied to claims 1, 4 and 7 –9 and 15 above and further in view of Scheffer (US 4,425,934)

The combination of Souza and DE '818 discloses the claimed invention with the exception of an explicit disclosure of retrofitting the valve body to an existing stem. However, Souza discloses that the valve body is configured to be sealably inserted into various flow lines.

Scheffer discloses a non-return valve (9) having an exit lip that is retrofitted to an existing valve stem (9) for the purpose of inflation of pneumatic tires in an effectively reliable manner (Col. 1, lines 23 – 28). To retrofit the non-return valve of the combination of Souza and DE '818, it merely needs to be inserted into the flow line (5)

so that the membrane (16, 16') sealingly engages the pin (8). The membrane (16, 16') of the non-return valve in the combination of Souza and DE '818 being flexible, it is therefore configured to retrofit an existing valve stem (8). Furthermore the non-return valve of Souza is made of one-piece and is inexpensive to manufacture (Col. 1, lines 25 – 27).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to retrofit the valve body of the combination of Souza and DE '818 to an existing valve stem as recognized by Scheffer for the purpose of inflation of pneumatic tires in an effectively reliable manner.

6. Claims 2 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Souza and DE '818 as applied to claims 1, 4 and 7 –9 and 15 above and further in view of Vest (3,903,942).

The combination of Souza and DE '818 discloses the claimed invention with the exception of disclosing a fluid nozzle to impose a pressure on the inlet side of the diaphragm. Souza clearly discloses that the valve body (12) is designed to be inserted into various flow lines.

Vest discloses a non-return valve (21) formed in a tank (10) wherein a nozzle (14) is inserted to apply pressure on the inlet side of valve (21) to open the valve for the purpose of safely delivering fluid to the tank.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have placed the valve body of the combination of Souza and DE

'818 in the tank and to have used a nozzle for the purpose of safely delivering fluid into the tank.

7. Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Souza and DE 40 33 818 A1 as applied to claims 1, 4 and 7 -9 and 15 above and further in view of Taylor (US 3,485,419).

The combination of Souza and DE '818 discloses the claimed invention including two non-return valves that configured to be positioned in close proximity of each other in a co-axial arrangement but fails to disclose the non-return valves to be either nested at least partly within one another or abut or engage one another with their valve bodies in alignment.

Taylor discloses a dispensing arrangement wherein two non-return valves, each having a flexible body with an exit lip (20, 22) and arranged co-axially are configured (Fig. 2) to lie at least partially nested with in each other thereby having their respective valve bodies abutting each other. Such an arrangement clearly ensures reliable prevention of backflow.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have provided in the combination of Souza and DE '818 an arrangement of non-return valve wherein the valves are configured to lie at least partially nested with in each other thereby having their respective valve bodies abutting each other for the purpose of reliably preventing backflow as recognized by Taylor ('419).

8. Claims 12 and 13 are allowed.

Response to Arguments

9. Applicant's arguments with respect to claims rejected above have been considered but are moot in view of the new ground(s) of rejection.

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ramesh Krishnamurthy whose telephone number is (571) 272 – 4914. The examiner can normally be reached on Monday - Friday from 10:00 AM to 6:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gene L. Mancene, can be reached on (571) 272 – 4930. The fax phone number for the organization where this application or proceeding is assigned is (703) 872 – 9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308 - 0861.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for

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published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, reading "Ramesh Krishnamurthy". The signature is fluid and cursive, with the first letter of each word being capitalized and prominent.

Ramesh Krishnamurthy, Ph.D., PE
Primary Examiner
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